careers in

LOGISTICS

# Airline Pilots, Copilots, and Flight Engineers

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## *Job Overview*

Just over a century ago, Wilbur and Orville Wright built and flew their flying machine, the "Wright Flyer." It was the first airplane capable of sustained, controlled, and powered flight. As the "Fathers of Powered Flight," the Wright brothers further developed the airplane, trained the first pilots, and started the aviation era. Aircraft Pilots and Flight Engineers have seen many changes since those early years. Previously, Pilots with little training operated primitive aircraft; while today hundreds of hours of flying time and a pilot's license are required to fly complex high-tech vehicles capable of running on autopilot.

Airline Pilots, Copilots, and Flight Engineers pilot and navigate the flight of multi-engine aircraft in regularly scheduled service for the transport of passengers and cargo.

Most airplanes are flown by a two-pilot crew. The most experienced Pilot, the captain, commands the plane and supervises other crewmembers. The Copilot or first officer assists the Pilot and shares flying duties. On larger aircraft, there may be a Flight Engineer, who monitors and operates flight instruments. However, this position is used less frequently as new technology has replaced many of its functions.

One out of five pilots is a Commercial Pilot. Commercial Pilots fly and navigate small fixed or rotary-winged aircraft, primarily for the transport of cargo and passengers. They dust crops, spread seed for reforestation, test aircraft, fly passengers and cargo, direct firefighting efforts, track criminals, monitor traffic, and rescue and evacuate the injured.

## *Typical Tasks*

**Airline Pilots, Copilots, and Flight Engineers**

- File instrument flight plans with air traffic control to ensure that flights are coordinated with other air traffic.
- Brief crews about flight details such as destinations, duties, and responsibilities.
- Check passenger and cargo distributions and fuel amounts, to ensure that weight and balance specifications are met.
- Choose routes, altitudes, and speeds that will provide the fastest, safest, and smoothest flights.

# Airline Pilots, Copilots, and Flight Engineers

- Confer with flight dispatchers and weather forecasters to keep abreast of flight conditions.
- Contact control towers for takeoff clearances, arrival instructions, and other information, using radio equipment.
- Coordinate flight activities with ground crews and air-traffic control, and inform crew members of flight and test procedures.
- Direct activities of aircraft crews during flights.

**Commercial Pilots**

- File instrument flight plans with air traffic control so that flights can be coordinated with other air traffic.
- Check aircraft prior to flights to ensure that the engines, controls, instruments, and other systems are functioning properly.
- Check baggage or cargo to ensure that it has been loaded correctly.
- Consider airport altitudes, outside temperatures, plane weights, and wind speeds and directions in order to calculate the speed needed to become airborne.
- Choose routes, altitudes, and speeds that will provide the fastest, safest, and smoothest flights.
- Contact control towers for takeoff clearances, arrival instructions, and other information, using radio equipment.
- Coordinate flight activities with ground crews and air-traffic control, and inform crew members of flight and test procedures.
- Monitor engine operation, fuel consumption, and functioning of aircraft systems during flights.

*Detailed descriptions of these occupations may be found in the Occupational Information Network (O*NET) at online.onetcenter.org.*

## *Important Skills, Knowledge, and Abilities*

- Operation and Control — Controlling operations of equipment or systems.
- Coordination — Adjusting actions in relation to others' actions.
- Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Transportation — Knowledge of principles and methods for moving people or goods by air, rail, sea, or road, including the relative costs and benefits.
- Geography — Knowledge of principles and methods for describing the features of land, sea, and air masses, including their physical characteristics, locations, interrelationships, and distribution of plant, animal, and human life.
- Physics — Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and subatomic structures and processes.

- Public Safety and Security — Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- Control Precision — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.
- Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
- Spatial Orientation — The ability to know your location in relation to the environment or to know where other objects are in relation to you.

## Work Environment

Piloting a plane rarely requires much physical effort. However, stress comes from the responsibility of getting hundreds of passengers safely to their destination. Being constantly alert and ready to handle emergencies can be very tiring. Irregular sleep patterns due to frequent schedule changes may contribute to mental and physical fatigue. By federal law, Airline Pilots are limited to no more than 100 hours per month or 1,000 hours per year of flying time. Most Airline Pilots fly an average of 75 hours per month and spend another 75 hours per month on nonflying tasks. Most work several days on and get several days off. They spend a good deal of time away from home on flights that involve overnight layovers. Since airlines operate flights around the clock, Pilots frequently work variable schedules.

Commercial Pilots often work irregular schedules with more nonflying responsibilities than Airline Pilots. Flight Instructors frequently work in the evenings or weekends, depending upon weather conditions and their students' schedules. The work of Test Pilots, who check flight performance, may be dangerous. Pilots who are crop dusters may be exposed to toxic chemicals and seldom have the benefit of a regular landing strip. Helicopter Pilots involved in rescue and police work may be at risk for injury and may encounter hazards while flying at low altitudes. Those Pilots who sit in an open cockpit are exposed to the summer heat and winter cold.

Most Airline Pilots are members of the Air Line Pilots Association, International (ALPA). Others join the Allied Pilots Association or the Flight Engineers' International Association.

## California's Job Outlook and Wages

The California Outlook and Wage table below represents the occupation across all industries.

| Standard Occupational Classification | Estimated Number of Workers 2004 | Estimated Number of Workers 2014 | Average Annual Openings | 2006 Mean Annual Wage |
|---|---|---|---|---|
| **Airline Pilots, Copilots, and Flight Engineers** | | | | |
| 53-2011 | 6,400 | 7,600 | 290 | $152,864 |
| **Commercial Pilots** | | | | |
| 53-2012 | 2,200 | 2,500 | 90 | $66,597 |

*Wages do not reflect self-employment.*
***Average annual openings** include new jobs plus net replacements.*
*Source: www.labormarketinfo.edd.ca.gov, Employment Projections by Occupation and OES Employment & Wages by Occupation, Labor Market Information Division, Employment Development Department.*

# Airline Pilots, Copilots, and Flight Engineers

## *Trends*

Employment of Airline Pilots, Copilots, and Flight Engineers is expected to grow faster than average during the 2004 to 2014 projections period. As new aircraft are being built to accommodate a two-pilot crew, employment of Flight Engineers will decline. For Commercial Pilots, growth is expected to be slower than average.

Despite a recent slowdown in the airline industry, trends indicate that air travel will increase over the next decade as the economy expands and population grows. Job opportunities are expected to be better with regional and low-fare carriers, which are growing faster than the major airlines. Air cargo carriers also offer good opportunities as a result of electronic business growth and increased security required to ship freight on passenger airlines.

Since competition is intense for Pilot positions with the major airlines, candidates who have logged the greatest number of flying hours and those with the most Federal Aviation Administration (FAA) licenses will have an advantage. Military experience as a Pilot is also a plus.

As airlines switch to larger planes and convert to the low-fare carrier model emphasizing faster turnaround times for flights, Pilots will spend more time in the air.

## *Training/Requirements/Apprenticeships*

Minimum educational requirements for most commercial airlines are high school graduation or two years of college. However, most Pilots hired by large commercial airlines have four years or more of college. Pilot training is given in military or civilian flight schools. According to ALPA, "more than half of the Pilots currently flying for U.S. airlines have had military training. However, the military are training fewer Pilots and requiring longer service commitments. You can reach your goal of becoming an Airline Pilot sooner through civilian training, much of which is geared to airline flying. Pilot training can be obtained in colleges through aviation courses or from privately operated flight schools."

According to the ALPA, most airlines require at least 1,500 flight hours in multi-engine aircraft. Newly hired Pilots for regional airlines average over 2,000 hours. The average multi-engine flight hours for new hires at major airlines are almost 4,000.

Helicopter Pilots need about 1,000 hours of helicopter flight time to be competitive for jobs. Most earn those hours as flight instructors after obtaining their own Helicopter Pilot's certification.

All Pilots paid to fly passengers or cargo must have a commercial pilot's license with instrument ratings from the FAA. Candidates must be at least 18 years old and have 250 hours or more of flying experience. They must pass a practical flight test, two written tests, and a medical examination. Airline Pilots must meet additional requirements. They must have an Air Transport Pilot's license which requires 1,500 hours of flying experience including instrument and night flights. Applicants must pass a written exam and flight test and be at least 23 years of age. They must have vision correctable to 20/20 and good hearing. FAA-mandated drug screening is administered prior to hire as well as on a random basis during the course of employment.

**Recommended High School Course Work**

High school students interested in this type of work should take courses in geography, physics, mathematics, driver's education, and English.

# Airline Pilots, Copilots, and Flight Engineers

## Where Do I Find the Job?

Direct application to employers remains one of the most effective job search methods.

Use the *Search for Employers by Industry* feature on the *Career Center* page at www.labormarketinfo.edd.ca.gov to locate employers in your area. Search under the following industry names to get a list of private firms and their addresses:

- Aircraft Engine and Engine Parts
- Aircraft Manufacturing
- Couriers
- Flight Training
- Guided Missiles and Space Vehicles
- Other Aircraft Parts and Equipment
- Other Guided Missile/Space Vehicle Parts
- Other Heavy Machinery Rental and Leasing
- Other Machinery Rental and Leasing
- Other Nonscheduled Air Transportation
- Scheduled Freight Air Transportation
- Scheduled Passenger Air Transportation

Search these **yellow page** headings for listings of private firms:

- Air Cargo & Package Express Service
- Air Courier Service
- Aircraft Flight Training Schools
- Aircraft-Charter, Rental & Leasing
- Airlines
- Ambulance Service
- Freight Forwarding

## Where Can the Job Lead?

Aircraft Pilots and Flight Engineers may advance to other flying jobs. Within the airlines, promotional opportunities are usually based upon seniority. Flight Engineers may advance to Copilot in 1 to 5 years, then Captain within 5 to 15 years. Seniority also determines which Pilots get the more desirable routes. In nonairline jobs, a Copilot may advance to Pilot, Chief Pilot, Check Pilot, or Aviation Director responsible for aircraft scheduling, maintenance, and flight procedures.

**Related Occupations**

Air Traffic Controllers (see Logistics Profile)

Aircraft Mechanics (see Logistics Profile)

Airfield Operations Specialists (see Logistics Profile)

# Airline Pilots, Copilots, and Flight Engineers

## *Other Sources*

Air Line Pilots Association (ALPA)
www.alpa.org

Aircraft Owners and Pilots Association (AOPA)
www.aopa.org

Allied Pilots Association
www.alliedpilots.org

Aviation Information Resources Inc. (AIR Inc.)
www.airapps.com

Federal Aviation Administration (FAA)
www.faa.gov

Helicopter Association International (HAI)
www.rotor.com

International Brotherhood of Teamsters Airline Division
www.teamster.org/divisions/Airline